

**STATE OF FLORIDA
OFFICE OF THE SECRETARY BRIEFING
DEPARTMENT OF ENVIRONMENTAL PROTECTION
AND DEPARTMENT OF HEALTH**

**Florida Phosphate Mine Initiative
Region 4, Waste Management Division**

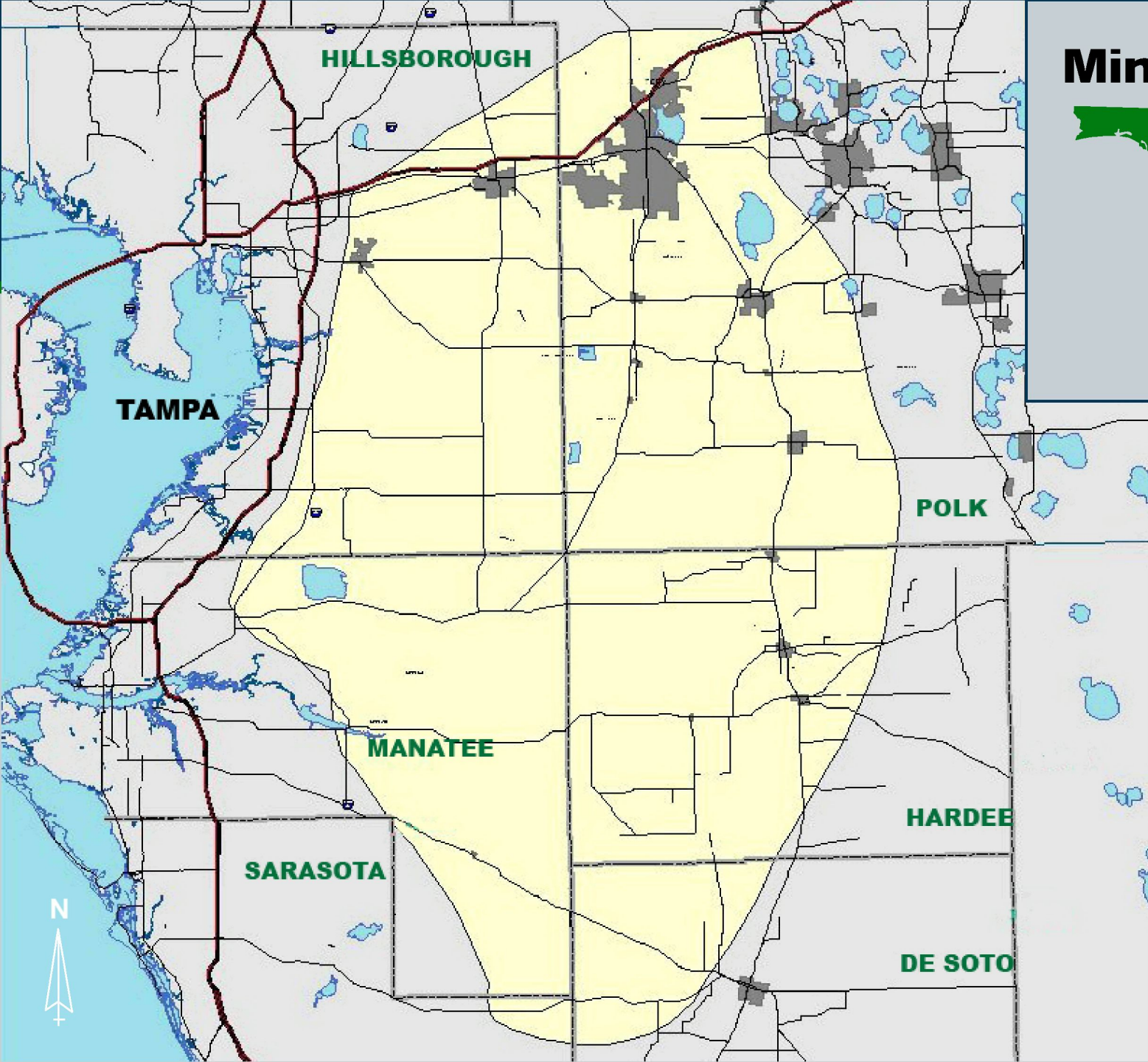
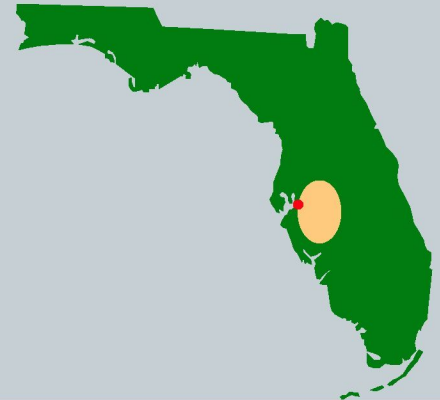
June 20, 2005



U.S. Environmental Protection Agency



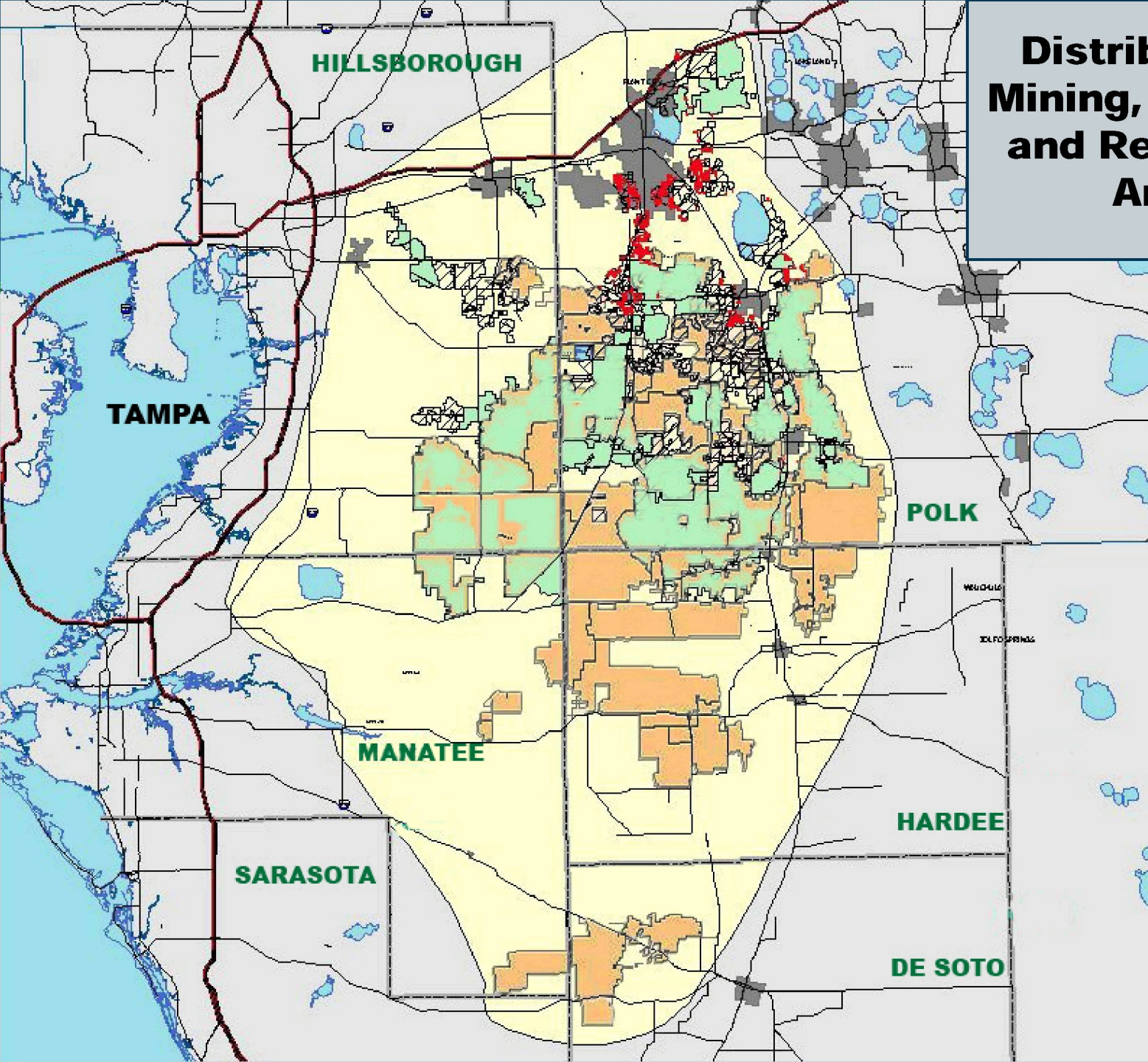
Mining Area



Legend

- Interstates
- County Line
- Towns
- Water Bodies
- Mineable Limit
- Counties

Distribution of Mining, CERCLIS, and Residential Areas



Legend

- All Mines Intersection
- Cerclis Intersection
- Nonmandatory
- Interstates
- County Line
- Cerclis Mining Sites
- Nonmandatory
- Towns
- Water Bodies
- Mandatory Mines
- Mineable Limit
- Counties

CERCLIS Site Locations & Names

Legend

- Roads
- Interstates
- County Line
- Towns
- Water Bodies
- Counties

Legend

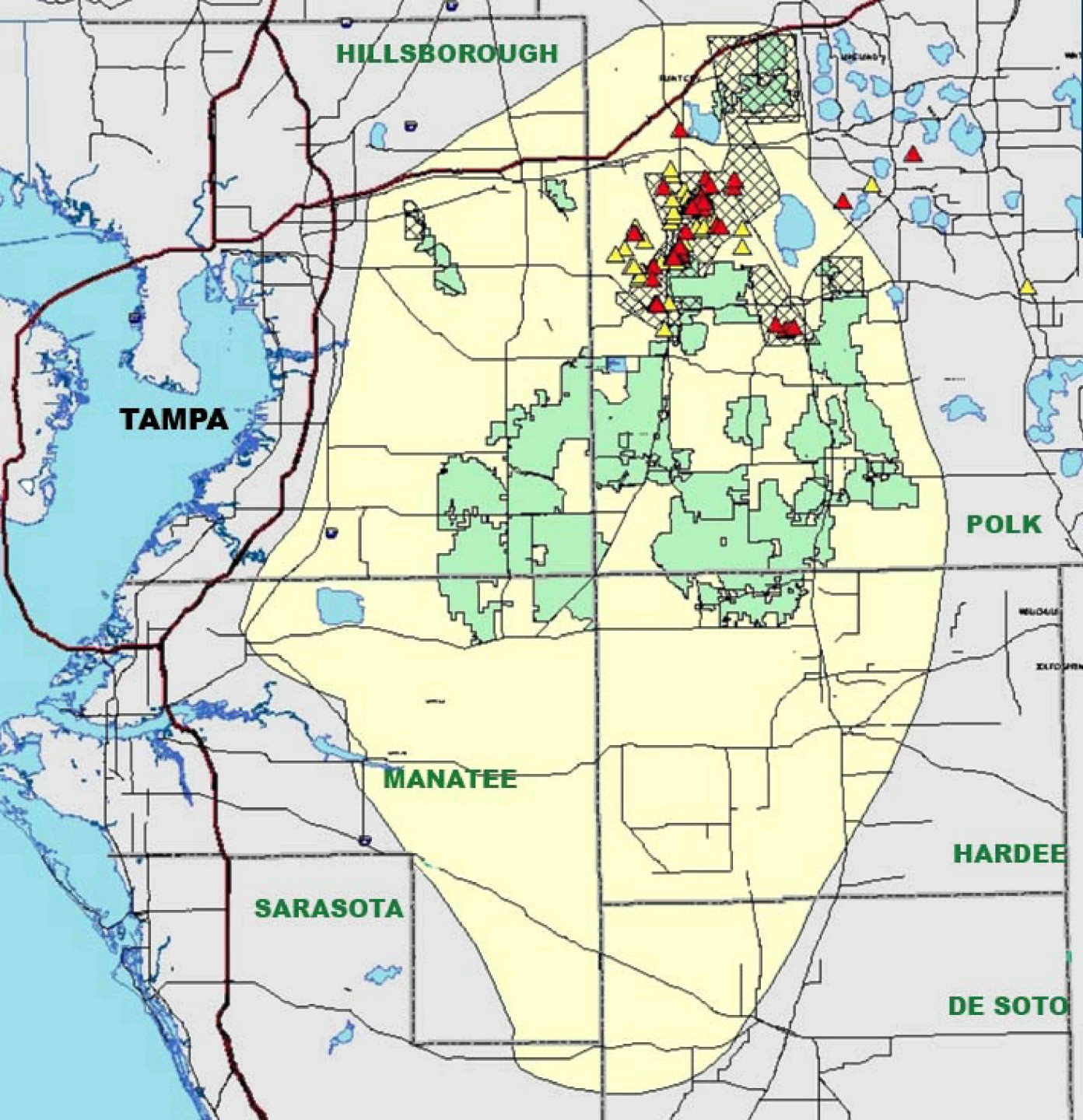
- Roads
- Interstates
- - - County Line
- Towns
- Water Bodies
- Counties

— Interstates

 Towns

Counties

State Radiation Data



Legend

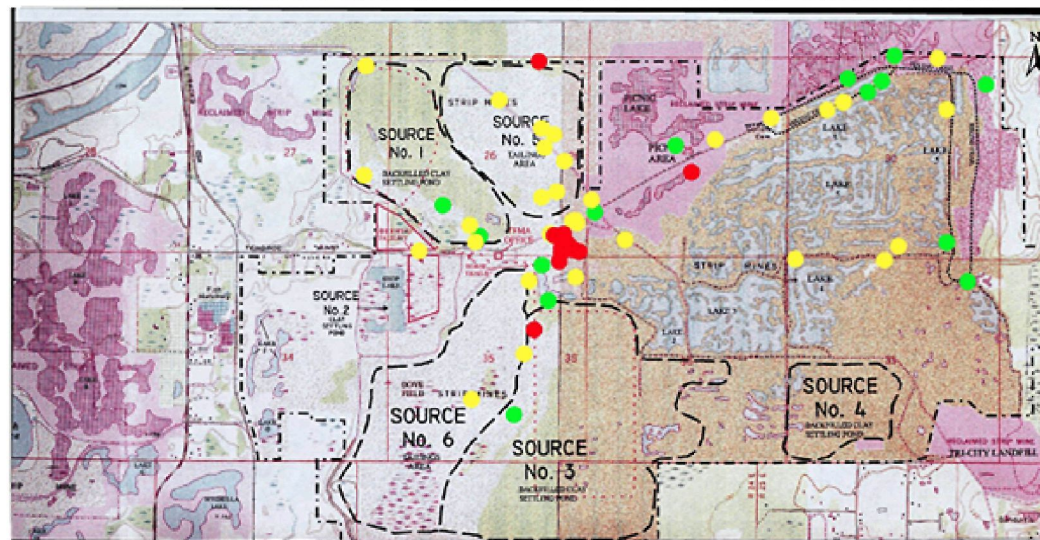
-  River/tribe
-  County line
-  Cedar Mining Sites
-  Survey Area
-  Water Bodies
-  Mineable Unit
-  Counties
-  public
-  residential
-  No Further Action
-  Further Action Indicated

Legend

-  River/tribe
-  County line
-  Cedar Mining Sites
-  Survey Area
-  Water Bodies
-  Mineable Unit
-  Counties
-  public
-  residential
-  No Further Action
-  Further Action Indicated

EPA RADIATION DATA UNDEVELOPED MINE

BORDEN CHEMICAL COMPANY / TENOROC MINE RADIATION MEASUREMENT LOCATIONS



Legend

- < 15 mRem/yr
- > 15 and < 100 mRem/yr
- > 100 and < 500 mRem/yr
- > 500 mRem/yr
- Site Boundaries
- Source Areas

Map Scale



This map is an adaptation of Fig. 1 in the report of July 25, 2009 prepared for the U.S. EPA by Beta Tech, Inc.

TYPICAL MINING AREAS

Active Mining Area



Pre- & Post-Mined Area



Settling Ponds



Gypsum Stack



TENORM CRITERIA

Organization	Criteria			
	Dose (mRem/yr)	Exposure Rate (μ R/hr)	Ra ²²⁶ - Soil (pCi/g)	Chronic Risk
EPA	100	20	5	10 ⁻⁴ to 10 ⁻⁶
DOD	–	–	5/15	–
DOE	100	–	5/15	ALARA
ATSDR	100	–	–	–
Florida	–	20	–	–
AL, GA, MS, SC, LA, TX	–	50	5	–
NCRP - General Population	100/500	–	–	10 ⁻⁴ or less (ALARA)
NCRP - Embro-fetus	50 (mRem/mo)	–	–	–
CRCPD	100	–	5	–

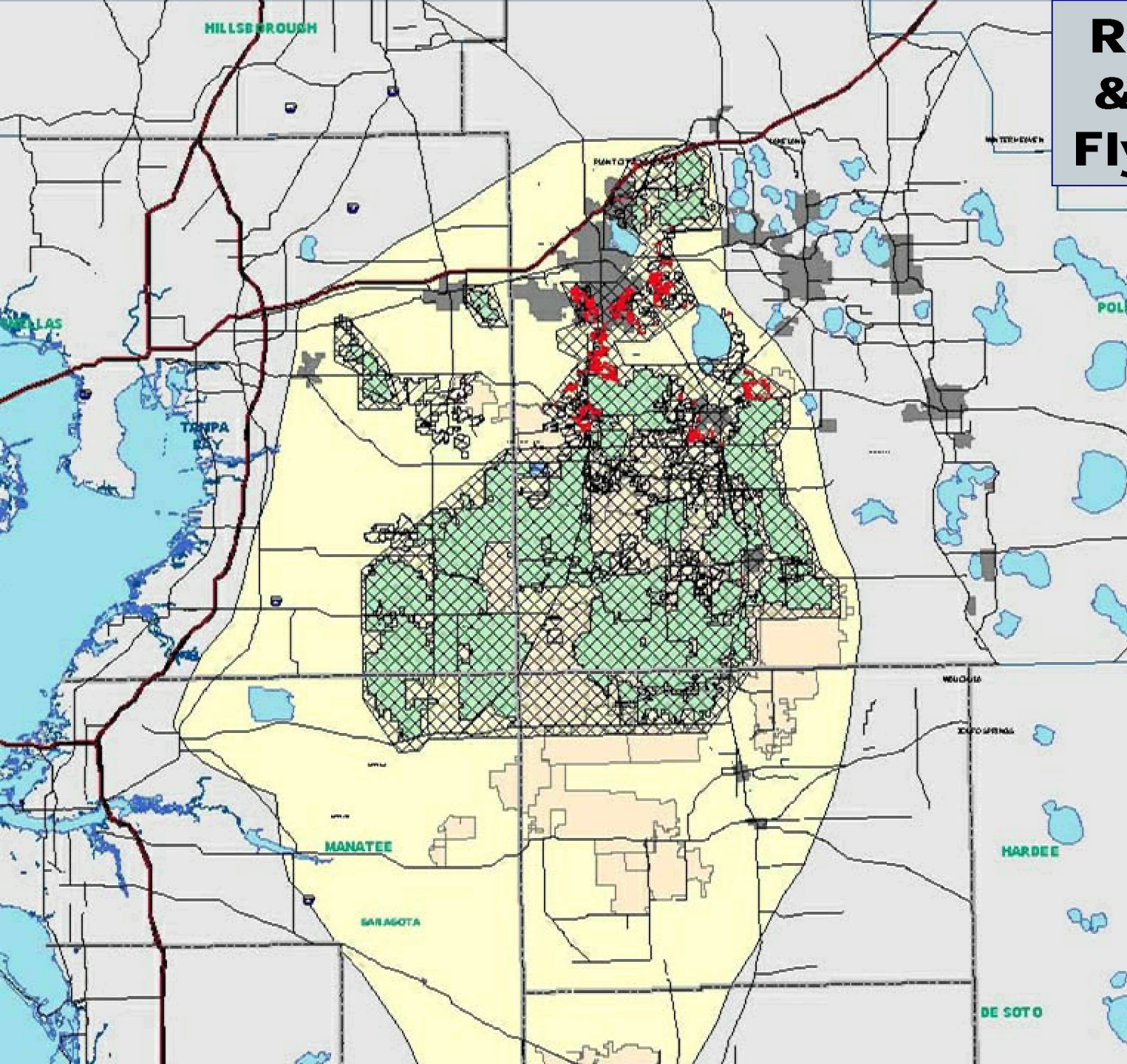
POTENTIAL ALTERNATIVES

- **EPA ASSESSMENT OF CERCLIS AND RESIDENTIAL AREAS WITH “RISK OPTIMIZATION”**
- **EPA ASSESSMENT OF CERCLIS AREAS & STATE ASSESSMENT OF RESIDENTIAL AREAS**
- **STATE LEAD FOR CERCLIS AND RESIDENTIAL AREAS**

EPA LEAD COMBINED ASSESSMENT WITH RISK OPTIMIZATION

- **EPA LEAD IN ASSESSING CERCLIS AND RESIDENTAL AREAS**
- **EFFORTS FOCUSED ON AREAS WHERE THE GREATEST RISK REDUCTION CAN BE ACHIEVED**
- **RISK MANAGEMENT DECISIONS CONSIDER RISK REDUCTION, COSTS, AND SOCIETAL NEEDS**
- **CLEANUP UNDERTAKEN COMPIANT WITH CERCLA RISK AND ARARS**

Residential & CERCLIS Flyover Area



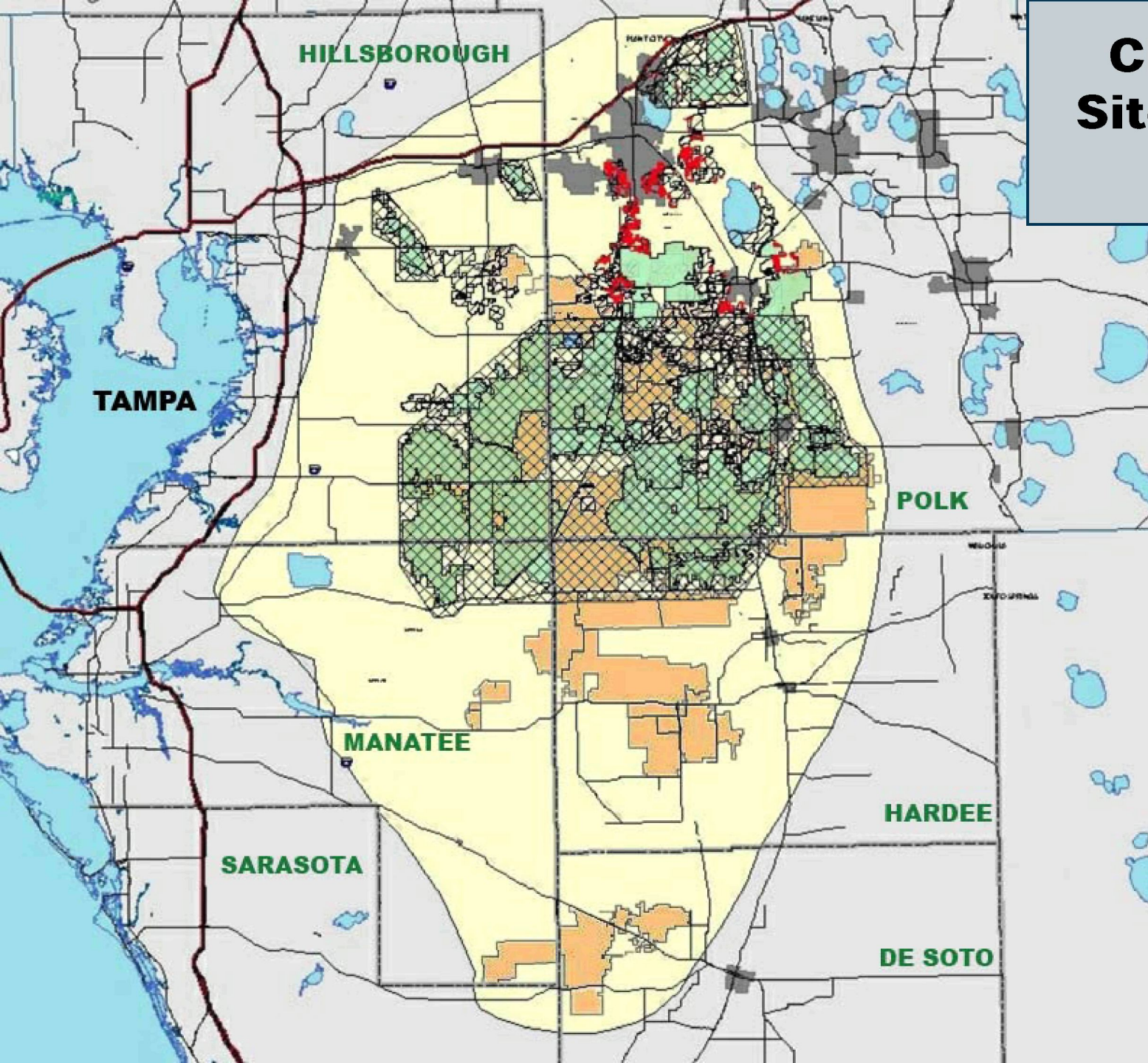
Legend

- Polk All Mines Intersection
- Polk Cerdis Intersection
- Polk Nonmandatory Intersection
- Roads
- Highways
- County Line
- Aerial Survey Area
- Cerdis Mining Sites
- Nonmandatory
- Town
- Water Bodies
- Mandatory Mines
- Mineable Unit
- Counties

SEPARATE ASSESSMENTS

- **EPA ASSESSMENT OF CERCLIS SITES & STATE ASSESSMENT OF RESIDENTIAL AREAS**
- **POTENTIALLY AVOIDS APPLICATION OF SUPERFUND CRITERIA TO RESIDENTIAL AREAS**
- **MAY REQUIRE PUBLIC EXPLAIN FOR DIFFERENT NON-DEVELOPED & RESIDENTIAL CRITERIA**

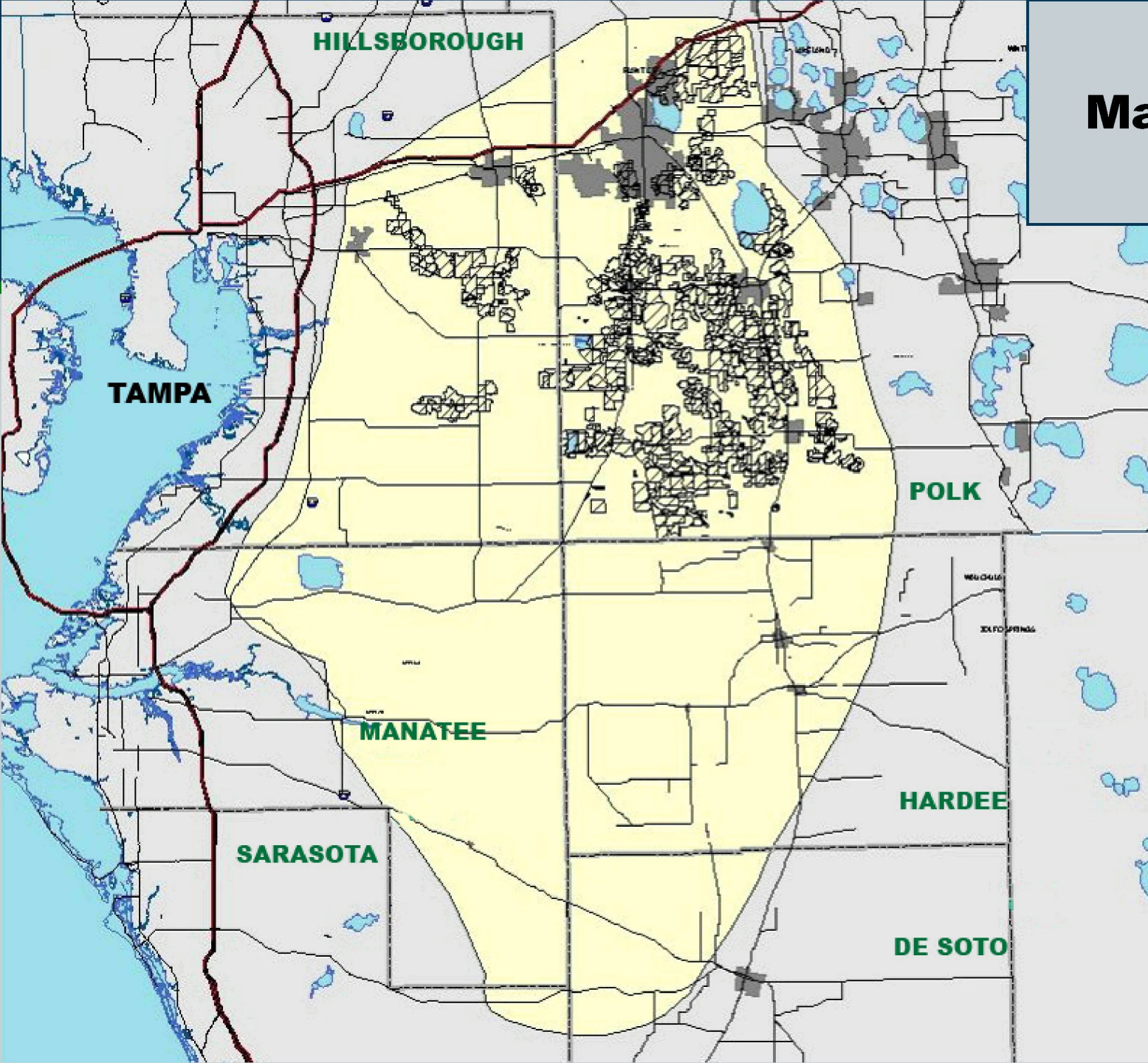
CERCLIS Site Survey Area



STATE LEAD RESIDENTIAL AND CERCLIS

- **RESIDENTIAL AREAS ADDRESSED BY STATE**
- **CERCLIS SITES REFERRED TO STATE FOR REASSESSMENT**
- **CERCLIS SITES PLACED IN “OTHER CLEANUP AUTHORITY” CATEGORY**

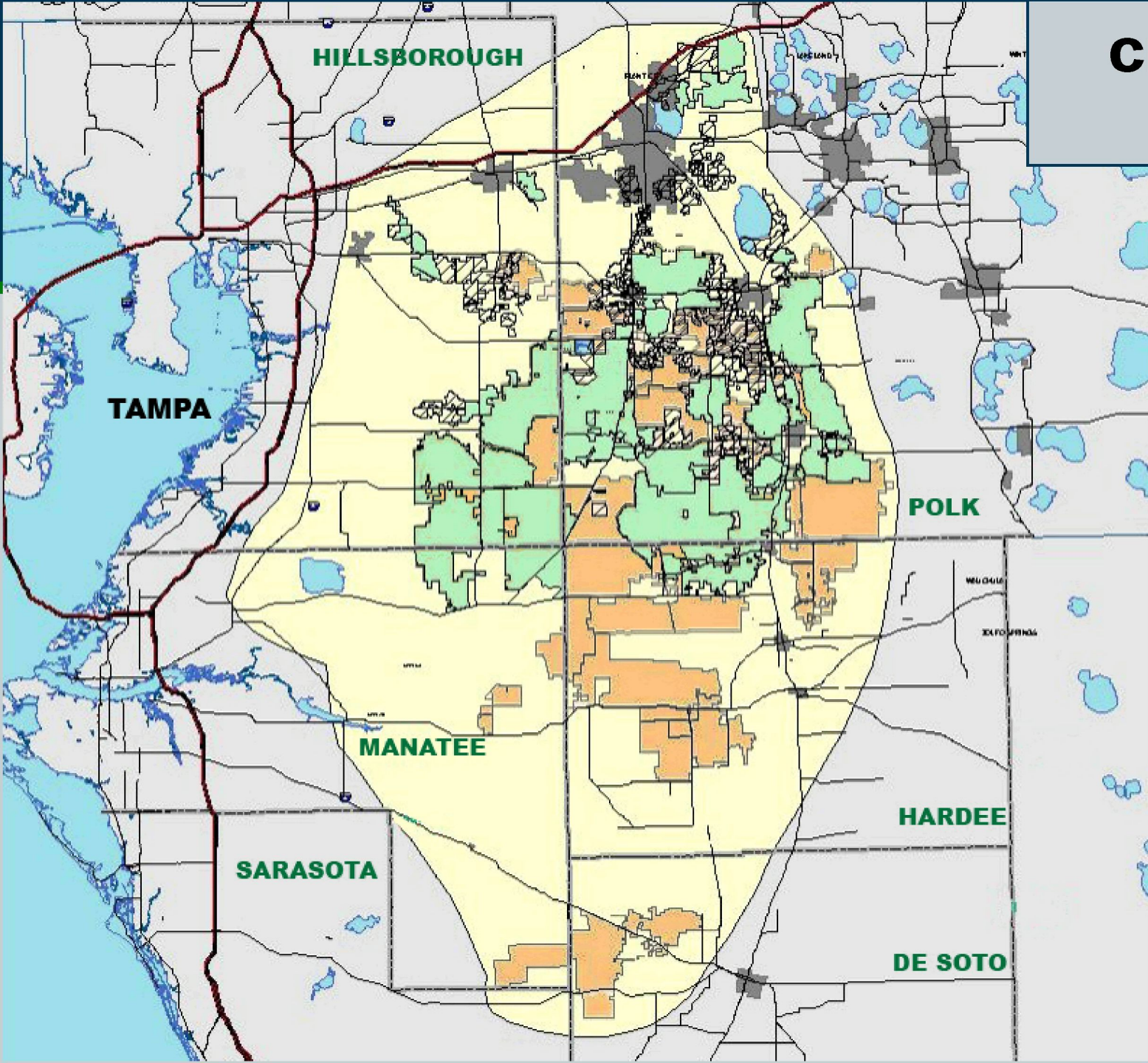
Non-Mandatory Sites



Legend

- Interstates
- County Line
- Nonmandatory
- Towns
- Water Bodies
- Mineable Limit
- Counties

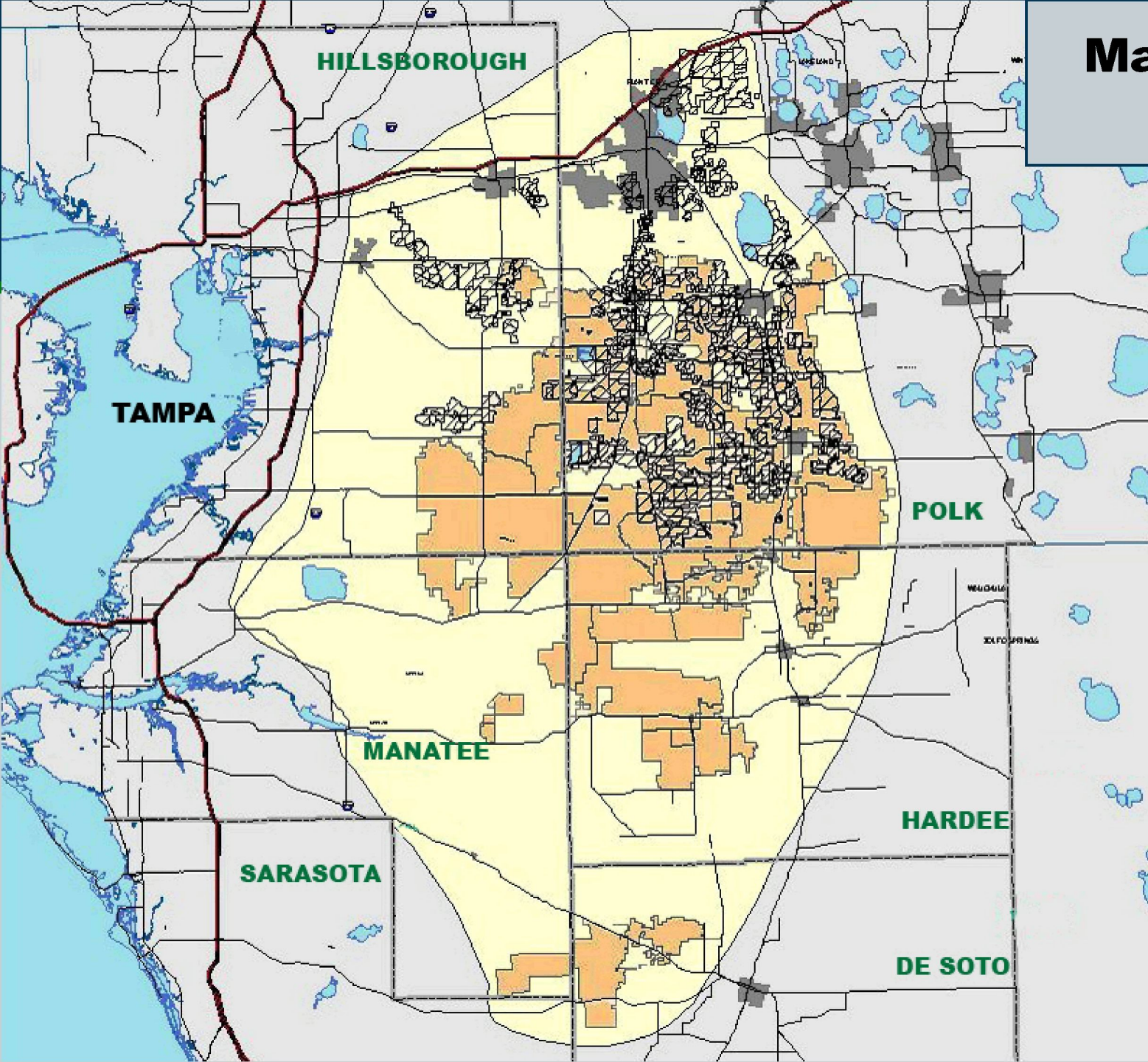
CERCLIS Sites



Legend

- Interstates
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- Cerolis Mining Sites
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Mandatory Sites



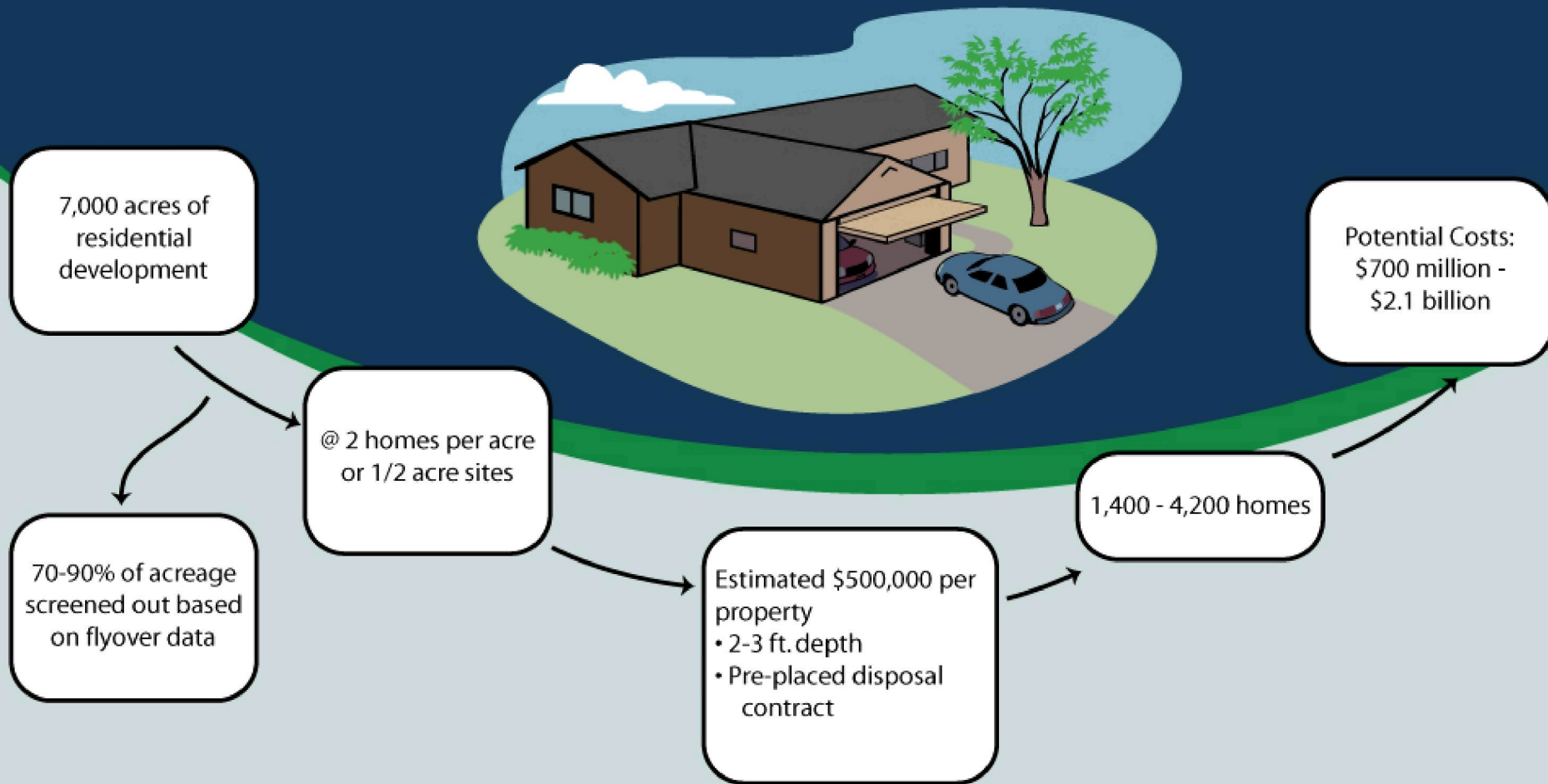
Legend

- Interstates
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- Mineable Limit
- Counties

SCOPE OF BREIFING

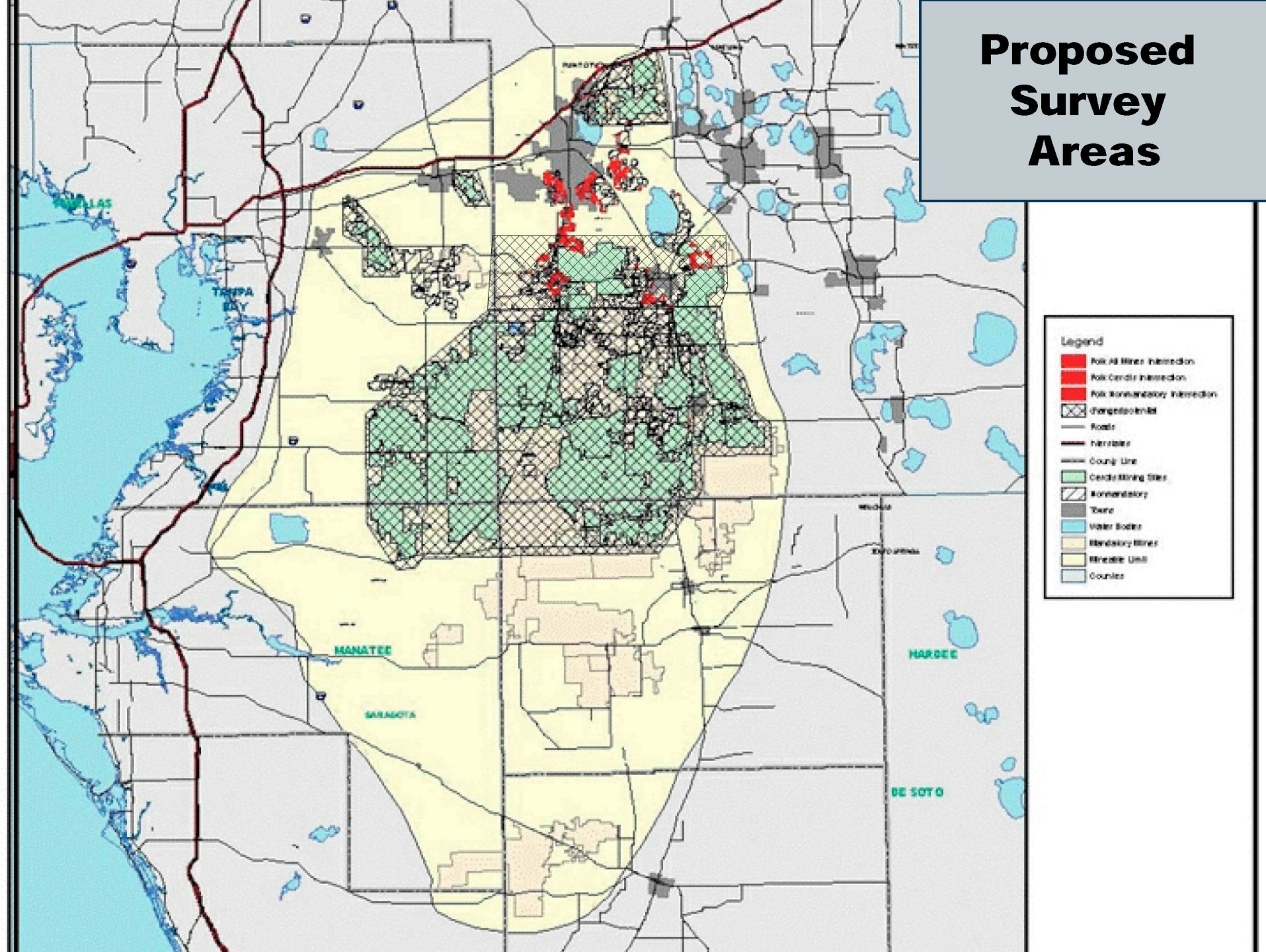
- ☐ BACKGROUND
- ☐ POTENITAL ISSUES
- ☐ POTENTIAL OPTIONS

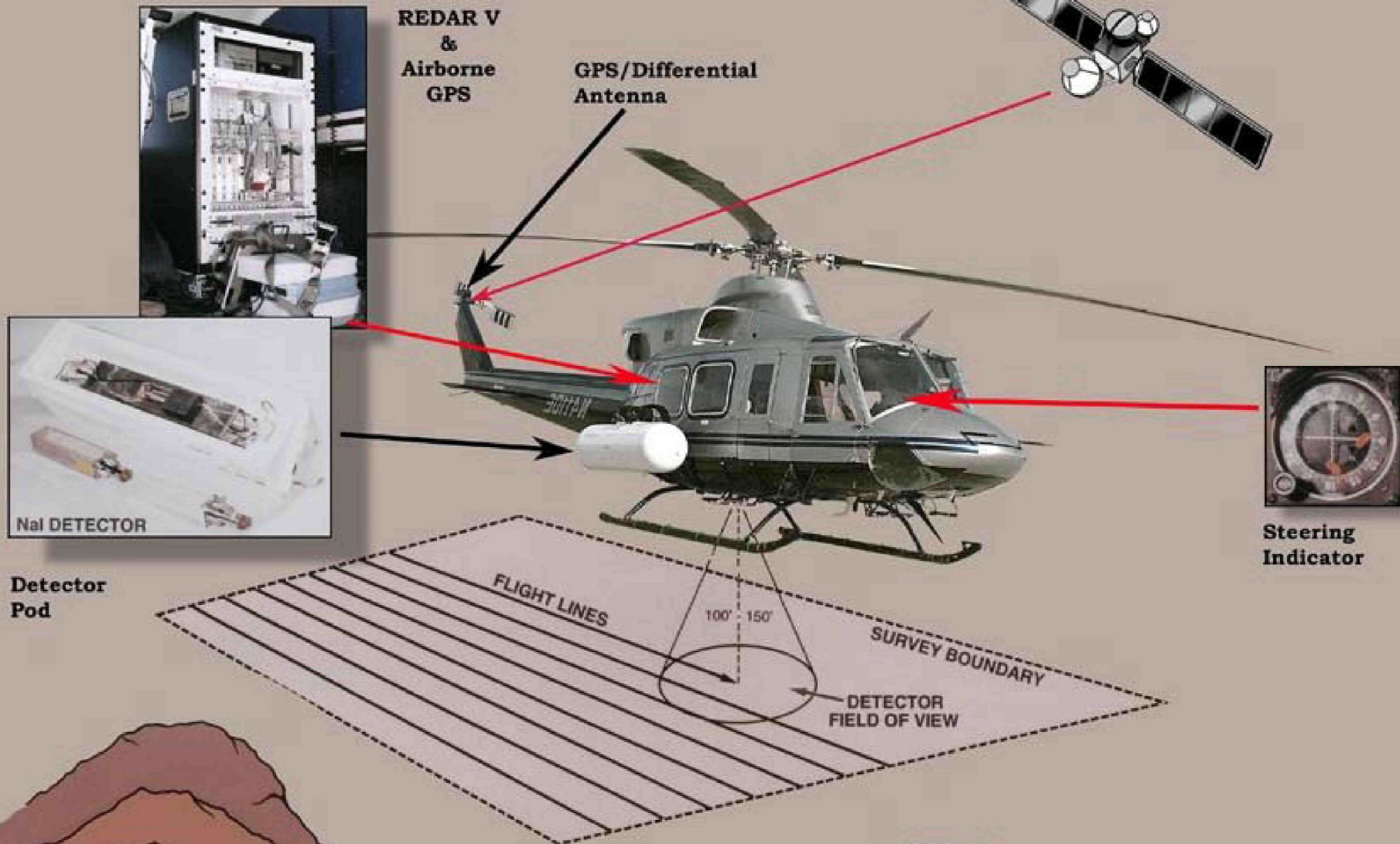
TYPICAL SUPERFUND SOIL EXCAVATION/DISPOSAL



Supplemental Information

Proposed Survey Areas





Radiation Survey Method

CLOSING REMARKS

COLLECT DATA

CHARACTERIZE AREA

DEVELOP APPROACH

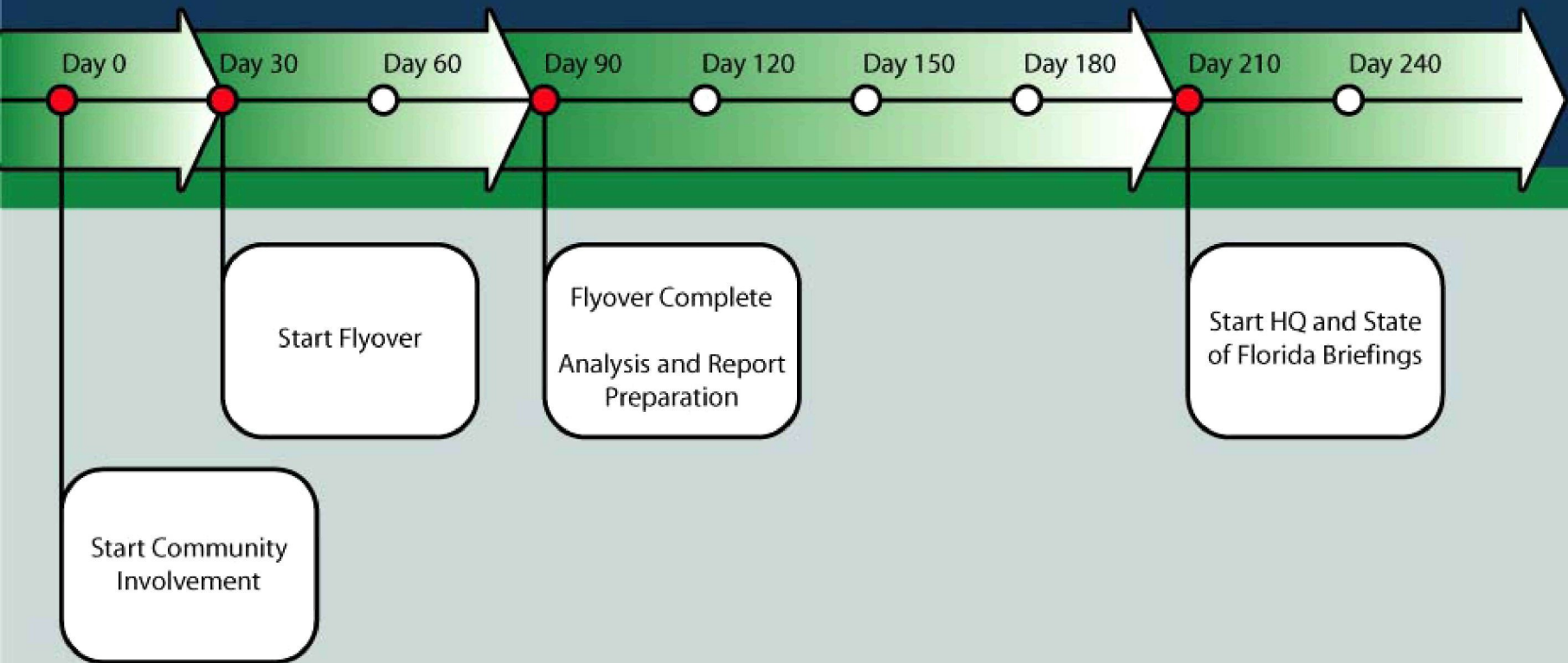
- CRITERIA**
- FEASIBILITY**

NEXT STEPS

- INDUSTRY**
- WORK GROUP**

SUPPLEMENTAL INFORMATION

PHASE I TIMELINE



OTHER NPL SITES

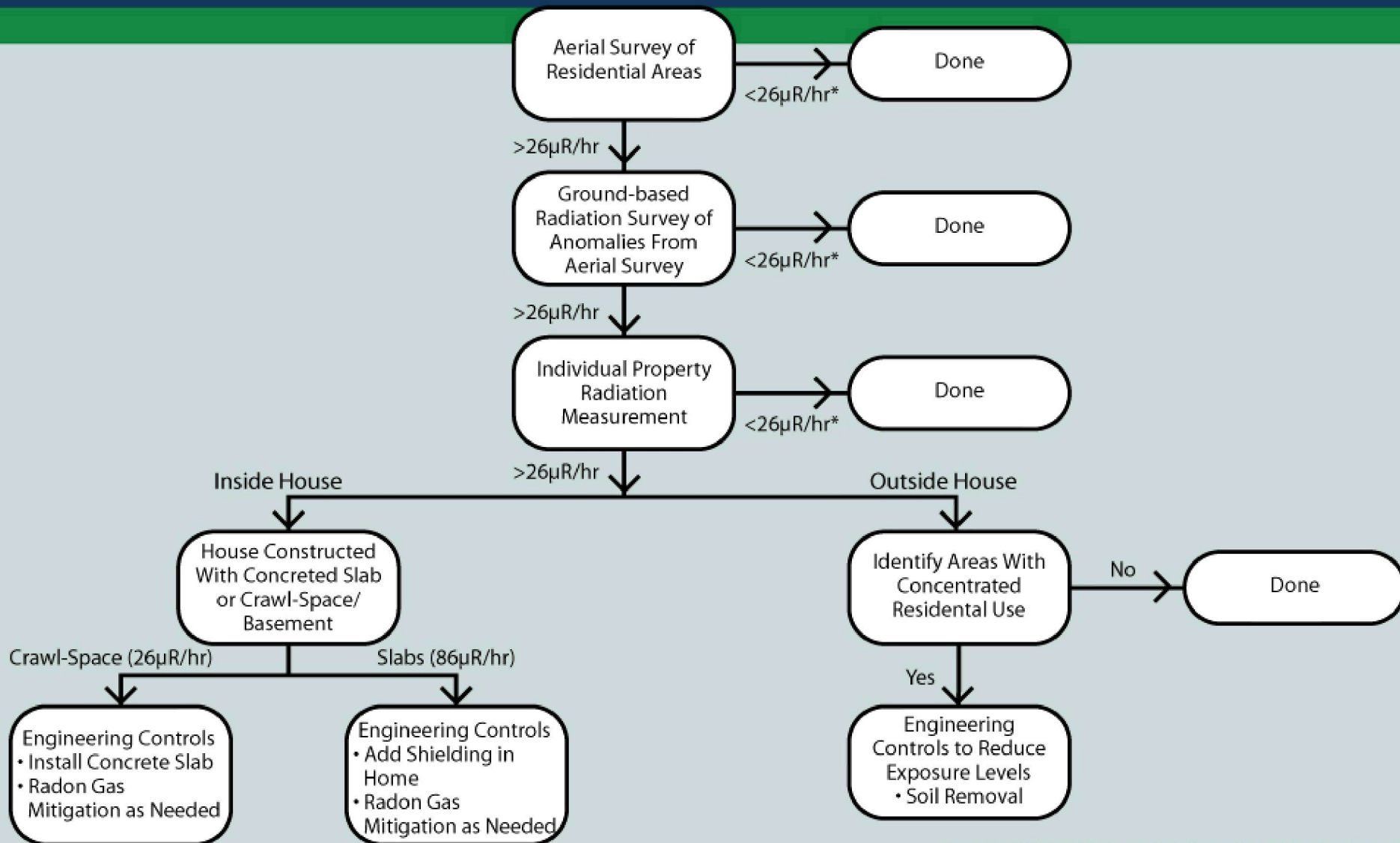
Site	Homes	Cost
West Chicago	670	\$ 80 Million
Maywood/Wayne NJ	900	\$ 430 Million
Glen Ridge, NJ	960	\$ 300 Million

EPA COMMUNITY INVOLVEMENT MESSAGE

EPA is surveying radiation levels in West Central Florida where phosphate mining has occurred.

This survey is part of a process to investigate 21 phosphate mining areas in EPA's inventory of sites. Radiation levels over these areas will be measured using equipment mounted on a helicopter. EPA is also aware of a smaller area of formerly-mined land developed for residential use. The Agency will measure radiation levels over this area as well. The aerial survey will provide a baseline for EPA and the State of Florida to determine whether additional action is needed.

PROTECTIVENESS, REGULATORY, & COST BALANCING PROPOSAL RESIDENTIAL AREAS



Notes: * UMTRCA/ARAR - $20\mu\text{R/hr}$ including $6\mu\text{R/hr}$ background

CONCEPTUAL PLAN / FUNDING STRATEGY

Phase I

- Aerial Radiological Survey
- Res/CERCLIS areas
- \$1 Million

Phase II

- Ground Based Radiological Survey
- Residential Areas
- \$5 Million
- 80 square miles

Phase III

- Superfund Alternative
 - PRP – Lead
 - Phosphate Industry
 - Mosaic (Cargill/IMC)
 - USAC (China-base)
 - CF Ind (Mid-west Co-OP)
 - PCS Phosphate – (Canadian)
- Fund Lead
 - Removal
 - Remedial

MINING AREAS

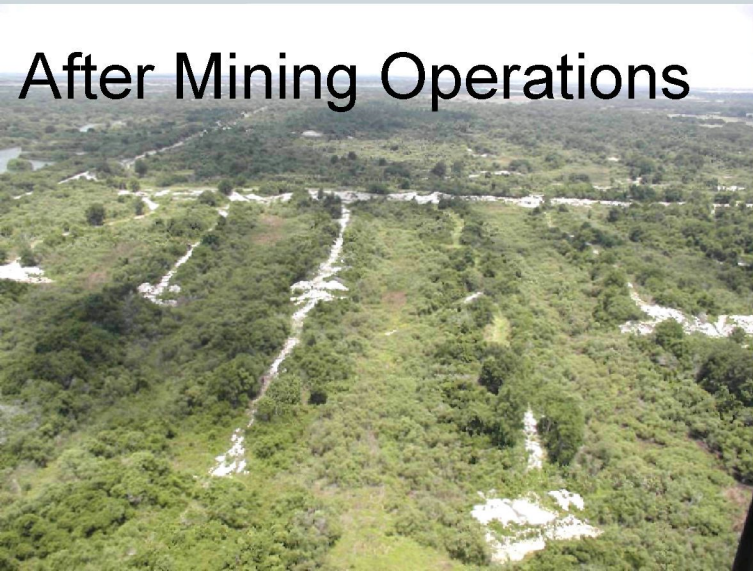
Mined Area



Active Mining



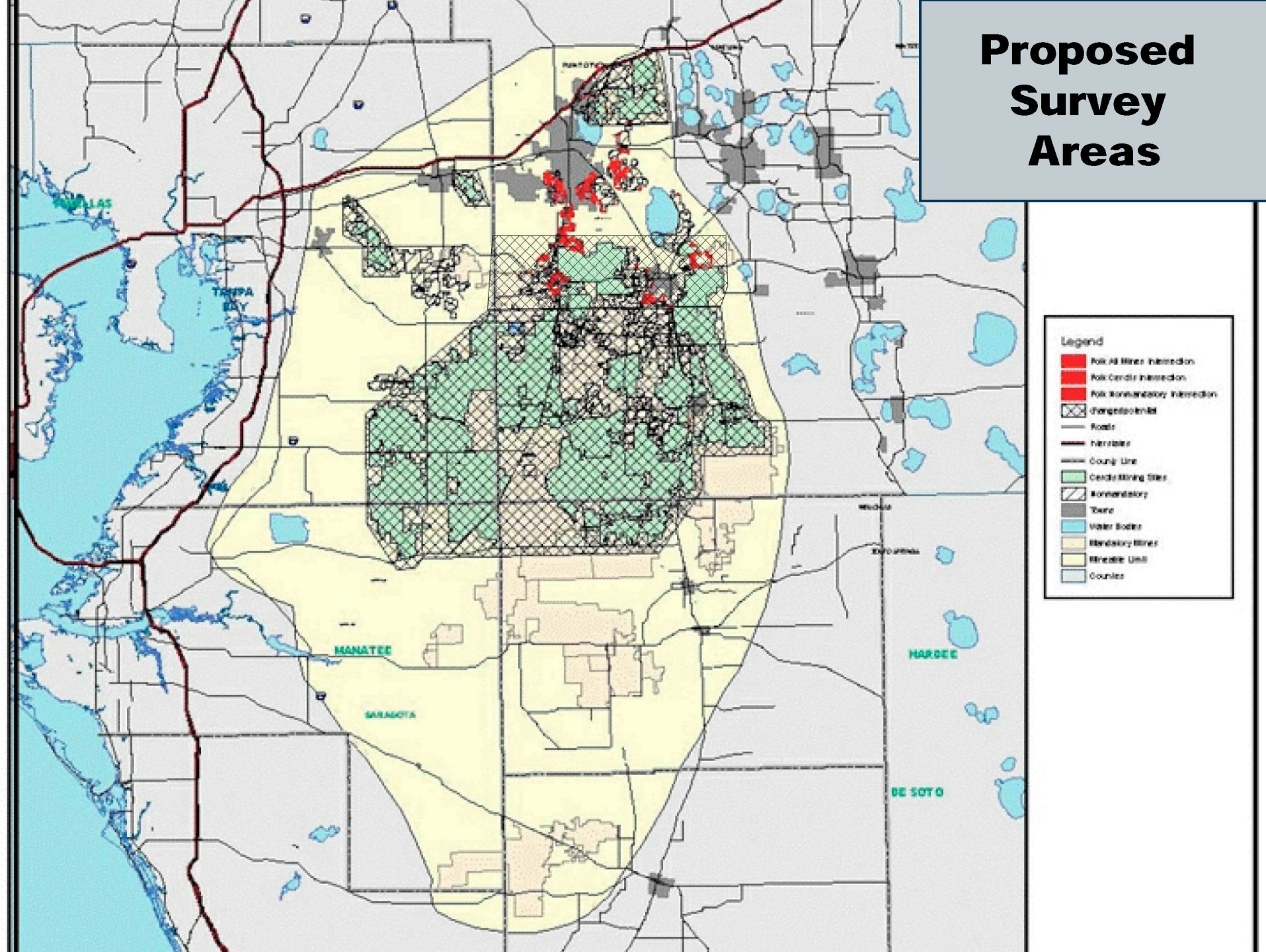
After Mining Operations



Post Mining re-vegetation



Proposed Survey Areas



POTENTIAL APPROACHES

Traditional NPL Superfund

- ARARs
- Risk

Alternate Authority

- State
- RCRA

Regulatory & Cost & Balancing

- 20 ur/hr (State/Fed)

POPULATION DENSITY FOR CERCLIS SITE AREAS

